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THE HISTORY AND CONSTRUCTION
OF FORT McHENRY IN BALTIMORE HARBOR

This thesis on "The History and Construction of Fort McHenry in Baltimore Harbor" was written by Joseph H. Deckman as a part of the requirements for the initiation into the Beta Chapter of the Tau Beta Pi, Honorary Engineering Fraternity, of the University of Maryland.

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THE HISTORY AND CONSTRUCTION OF FORT McHENRY IN BALTIMORE HARBOR

Whetstone Point and Fort McHenry have long played an important role in American History. Whetstone Point is first heard of in connection with military operations in 1776, when Baltimore first felt the need of fortifications to protect her from sea warfare.

The British warship "Otter", accompanied by two tenders, had been cruising in American waters for the purpose of attacking ships and coastline cities. In March 1776 with her two tenders and a prize she sailed up Chesapeake Bay with the object of attacking the city of Baltimore.

The people of the city, becoming alarmed, decided to fortify Whetstone Point, which was selected for this purpose because of its strategic position from a military standpoint. The point is located about three miles from Baltimore and protrudes into the very mouth of the harbor.

The fortifications built at this time were nothing more than rifle pits, and a mud and log fort. This work was done by 250 slaves from the vicinity of the city. After the work was completed eighteen cannons were mounted behind the breastworks and a detachment of men under Captain N. Smith was detailed as a garrison for the fort.

To insure further safety from attack, a boom was erected between Whetstone Point and the Lazaretto, and a chain supported by 21 sunken ships was stretched across the neck of the harbor.

While Whetstone Point was being fortified a Maryland ship, the "Defense", was being built. This ship being nearly completed, it was decided to rush the work so that an attack on the "Otter" could be made.

Upon her completion, manned by a number of men who volunteered from Smallwood's battery to serve as marines, she sailed out to meet the "Otter". The British, becoming alarmed at the strength of the Americans, decided not to fight. The "Otter" weighed anchor and sailed down the bay. The commander of the "Defense", deciding not to pursue the "Otter", then returned to the city and brought with him the British prizes.

This incident ended any attempts at an attack on Baltimore during the Revolution and Whetstone Point is not heard of again until 1794, when war with Great Britain again threatens. The strained relations at this time arose from the English claim that American ships flying the French flag were attacking her merchantmen, destroying or carrying off cargoes and sometimes abducting sailors.

With this danger of another war, the fast growing city of Baltimore decided to fortify Whetstone Point with a permanent structure. Major J. J. Ulrich Rivardi, a French artillery engineer, was employed to draw up plans for a fort. His plans were accepted and a star fort with upper and lower batteries was built. The cost of the fort and other defenses which were constructed at that time was about half a million dollars, which was raised and spent by the people of Baltimore.

Work on the fort was begun in 1794 and was finished in 1798, although minor improvements were also carried on until 1805. While the work was in progress, it was decided to transfer the fort from the people of Baltimore to the United States Government. In 1798, Major Tousard was ordered to examine the defenses and to report on them to the War Department.

The fort was found satisfactory without additional improvements, and was, at this time, named for James McHenry who was Secretary of War and had served as General Washington's secretary during the Revolution.

The first deed for the transfer of the property from the people to the government was made on July 20, 1795 by Alexander Furnival. The amount of land transfereed at this time was seven acres and fifty-eight perches. William Goodman, on November 6, 1798 and August 26, 1800, conveyed land amounting to thirteen acres, and twenty-five perches. January 4, 1804 William O'Donnel conveyed five acres. The total amount of land in the reservation then became twenty-six and one quarter acres. Even though the individual transfers had been completed in 1804, the official transfer from the State of Maryland was not made until 1816.

CONSTRUCTION OF FORT MCHENRY

The major portion of the masonry in the fort is constructed of Baltimore brick with an oyster shell lime mortar as a binder. All of the work was done by hand and the fort today is a monument to the skilled masons of that day.

The fort proper was constructed in a star shape. The distance between the points measured 300 feet. The sides making up the point of the star measured 75 feet, and the length of the parallel side was made 45 feet. The distance between the base of the star points then became 125 feet.

The outer wall of the fort was constructed 14 feet above the ground and was made 20 feet in depth. This wall was made by building an outer and an inner wall of brick and then filling the intervening space with stone riprap, and covering the top with dirt. The brick on the face of the walls were laid in alternate rows of headers and stretchers, which were backed up by three rows of headers. This made a brick wall somewhat over two feet in thickness. The top of the outside brick wall was topped with a 6-inch coping of granite. In constructing the star points sandstone was used. This stone was ground to a knife edge.

After the completion of the outer wall, a second one was built. This wall was four feet lower in elevation and was made fifteen feet wide. It was constructed of stone riprap backed by a stone wall. As before, the top was covered with dirt.

In constructing the star points, the wall was dropped to a four foot lower elevation after the twenty-foot width had been built. This was done so that a platform could be afforded for the mounting of guns, four small cannons ranging in size from twelve to twenty-four pounds being the armament for each star point. A flag pole was also erected in the southeast starpoint. It is interesting to note that a flag pole is now standing on the same spot as the original flag pole did.

The building of the entrance and passageway took place when the wall was built. The entrance faces to the east and is situated midway between two starpoints. The mouth of the passageway faces to the southeast and is also located midway between two starpoints.

The entrance is more than just a means of entering the fort, as it contains two dungeons, a guard house, cells for condemned men, and the offices of the Captain of the Guard. Access to the enclosure is through an archway which is nine feet wide and twelve feet high. Here may be seen one of the finest examples of brick-laying, as the bricks are laid in the arch so that the heavy wooden gates can open inward.

Midway of the arcade two doors six feet wide and three feet high open to the dungeons, which extend underground. The dungeons were made eighteen feet wide, nine feet high and thirty-three feet long. The ceilings were arched, as were all of the brick ceilings. At the bottom of the arch the wall was broken by a number of holes one foot in diameter. These holes were used for ventilating and extended to the ground level. The inner door of the dungeon was made of iron bars, but the outer doors were of wood studded with iron bolts.

Inside of the enclosure a number of buildings were constructed. To the right of the entrance was built the commander's headquarters, a two-story brick building, eighteen feet in depth and seventy-five feet in length continuing around the enclosure. Next in line is the magazine, a brick structure which encloses a room twelve feet by twelve feet by twenty feet. The walls of the building are eight feet thick all around. It is entered by a four by six foot opening, which was protected by a heavy wooden door and a frame door with bars. After the magazine, comes the commander's living quarters, the officers living quarters, and the enlisted men's barrack. The commander's living quarters was built the same size as the headquarters building.

These buildings were all built of brick and topped with hand finished slate. The ground floor of the buildings was made by placing a layer of brick, a ten-inch layer of sand, and a top flooring of brick. The second floor was made by laying a double wooden floor on two by ten inch stringers, which were supported on six by six inch joists. Each room contained a fireplace which was used for cooking purposes as well as heating. Iron cranes were built in each fire place so that a kettle could be held over the fire. All of the buildings were divided into separate rooms with the exception of the headquarters building, in which the rooms were all connected by hallways and doors. The two larger buildings had four sets of rooms, the other two had three sets. Each room had two windows, both front and rear, a stairway, and a door. Two-storey wooden porches also extended across the full length of each building.

To insure the garrison against a lack of water in time of siege a fifty-four foot brick cased well was sunk in the middle of the enclosure. Next a 139-foot pipe was driven down and a wooden pump stock was attached. This completes the equipment of the fort proper.

To the south and east of the fort earthen breastworks were thrown up and one triangular brick breastwork was built in front of the entrance. These works were built high enough so that a dry moat was maintained between them and the fort proper. In the construction of the breastworks the earth was backed up by a brick wall, and a platform was left for the mounting of guns which were the same size as those used in the fort. This platform was at a four-foot lower elevation than the top. In the rear of

each battery separate magazines were built. These were constructed of brick and extended well below the ground level. To complete the construction a sea wall of stone was built all around the point. To the south and west of the fort two redoubts were constructed to guard the middle branch of the Patapsco River against the landing of troops for a surprise attack on the rear of the fort. These were named "Fort Covington" and the "City Battery". In the rear of these was a circle battery on higher ground.

Further precautions were taken by fortifying the Lazaretto with a four-gun battery, and a number of ships were sunk in the mouth of the harbor.

After the fort's completion, it was garrisoned, but there was no need for it until the War of 1812.

In April, 1813, Admiral Cockburn sailed up to the mouth of the Patapsco River and threatened the City of Baltimore. The defenses of the city were again strengthened. The town council appropriated \$20,000 and the people of Baltimore gave an additional \$500,000, which was spent for armament and the building of fortifications around the exposed section of the city. Besides appropriating money, the people of Baltimore turned out with pickaxes and shovels to help in the work. To strengthen the armament of Fort McHenry a party boarded the French frigate "La Poursuivante" and transferred her 42-pound guns to the fort. This ship had come to Baltimore for repairs after her fight with the British man-of-war "Hercules" and was then held by the Americans under the provisions of the Act of 1794.

Admiral Cockburn, on finding out the strength of the fortifications, decided not to attack, but sailed down the bay, capturing Havre de Grace and Spesutia Island, after which the fleet sailed up the Sassafrus River and sacked Fredericktown and Georgetown.

On August 8, 1813, the British fleet again appeared before Baltimore, but, as before, decided not to attack. Instead it ravaged the Eastern Shore and Anne Arundel County. In November the fleet retired to Bermuda for the winter and to make necessary repairs, but it appeared again in the Spring of 1814 with reinforcements.

On August 24 the British attacked and captured the city of Washington, defeating the Americans severely, and burning the city.

After this success, the British decided to attack Baltimore, as it was the only large American city which had not as yet been captured. A landing was made at North Point, as the British desired to make an attack both by land and sea. The Americans, being warned of the attack, met the enemy at the narrowest portion of the peninsula, where they turned them back, killing General Ross early in the encounter. This American success kept the British from joining their land and sea forces at Baltimore. After the battle they boarded their transports and joined the fleet which set sail for Baltimore.

At daylight on the morning of September 13, the British fleet consisting of sixteen bomb and rocket ships and transports carrying 5,000 troops for a landing force, opened fire on Fort McHenry. The bombardment

lasted from this time until seven o'clock the next morning.

Before dawn on the morning of September 14 the enemy attempted a surprise attack on the rear of the fort. As they proceeded up the main branch of the Patapsco, the noise of the muffled oars was heard by Captain Hancock's company. A hayrick was then lighted and the defenders of "Fort Covington" were enabled to rake the party with a very severe crossfire. A number of the boats were sunk and the British had to abandon the attack.

This decided the battle and the enemy ceased firing at seven o'clock and sailed out into the bay.

It was just after the battle that Francis Scott Key wrote the Star Spangled Banner which later became the National Anthem.

The series of events leading up to the writing of the Star Spangled Banner began with the British occupation of Upper Marlboro, Maryland. While planning the attack on Washington, Admiral Cockburn had made his headquarters at the home of Dr. Beanes in Upper Marlboro. The relations between the British and Dr. Beanes had been as agreeable as possible under the circumstances. After the enemy had departed groups of stragglers began to pillage the countryside in the vicinity of Marlboro. Dr. Beanes, being a leader in the community formed a pursuit party. This group captured and arrested a number of the marauders. Admiral Cockburn, hearing of this, sent a detachment of men to free the prisoners and to arrest Dr. Beanes. As a result, the physician was confined on board one of the ships of the fleet.

Francis Scott Key, a personal friend of Dr. Beanes, obtained permission from the President to intercede for the doctor. Key went to Baltimore and reported to John S. Skinner, the government agent for flags of

truce. Skinner accompanied Key as he sailed down the bay to interview the British.

Key pleaded for Dr. Beanes and explained the care which the physician had taken of the wounded British at the time they occupied Upper Marlboro. The admiral relented and promised to release Dr. Beanes after the attack on Baltimore. However, he would not let anyone leave the fleet until after the attack was made, Key and the doctor were, therefore, quartered on board the frigate "Surprise" until Baltimore was reached.

Upon the arrival of the fleet at the mouth of the Patapsco, the "Surprise" was made the flagship. Key and Dr. Beanes were then transferred to their own ship and put under a guard of marines. The location of their ship was such that a clear view of the fort could be had. Key was so agitated that he paced the deck during the entire bombardment of the fort. The morning of September 14 found him still pacing the deck with his eyes on Fort McHenry. When he saw the flag still flying over the fort, he was inspired to write the Star Spangled Banner. The poem was begun on board this ship and was finished while he was being rowed ashore. When Baltimore was reached the poem was shown to Judge Nicholson. The judge, being very much impressed, carried the poem to a printer and had a number of copies made. That evening it was sung in a theater to the tune of "Anacreon in Heaven." After this introduction the song quickly spread throughout the country.

The repulsion of the British at Baltimore was an outstanding success after a number of defeats. This battle saw the end of the war, and a treaty of peace was arranged and signed at Ghent on December 24, 1814.

With its signing the United States again proved its power as an independent nation and at last broke away from colonial influences.

After the War of 1812 a garrison was kept at Fort McHenry, but no use was made of the fort until the Civil War. At the outbreak of the Civil War the armament was made stronger by supplying the fort with larger guns, provision being made for twenty-eight eight inch guns and five fifteen inch guns.

In April, 1861 confederate sympathizers tried to gain possession of the fort but the garrison was prepared for the attack and the mob was turned back without bloodshed. Later in the war the dungeons were used to confine the prisoners taken at the battle of Gettysburg.

After the Civil War, when high explosives were introduced the reservation came into use again. The War Department built a brick magazine in the southwestern part of the reservation.

Nothing more was heard of the fort until 1912 when the garrison was removed. In 1914 the War Department gave Baltimore the right to use the reservation for a public park, but in the same year built immigration buildings in the northern part.

When the United States entered the World War the War Department again took over the reservation and, in 1917, built Hospital No. 2 and converted the immigration building into laboratories. During the War, and until 1923, the hospital cared for wounded and disabled soldiers. The old immigration buildings were then turned into a Veteran's Bureau.

In 1928 the reservation was made a national shrine. The hospital buildings were torn down and the \$28,500 realized as salvage money was used to

restore the fort. The amount was much too small to complete the proposed work for which \$250,000 was estimated. The government appropriated \$91,000 more which was used to restore the fort proper. This money was exhausted in March 1930 and the War Department appropriated \$6,000 to be used for seeding and landscaping. A provision was also made to allow \$10,000 to be expended in the fort each year for five years.

The drought in the summer of 1930, aided by the fact that excessive underdrainage resulted from the construction of the reservation with stone fill and a thin top soil layer, killed the newly planted shrubs and grass. The fill was necessitated by the removal of the hospital.

A resurvey was made by the War Department and \$85,000 was included in their Emergency Bill for the year of 1931.

The work of reconstructing the fort has been done by the War Department in conjunction with the Society of the War of 1812 in Maryland. Mr. James E. Hancock, an authority on the Fort and author of a brief history called "Fort McHenry", is the chairman of the Society's Committee on the Reconstruction of Fort McHenry.

Fort McHenry now stands restored to the condition it was in at the time of the bombardment. The fort has now become a national shrine, and is a symbol of the principles for which the United States stands; namely, Independence, Unity, and Democracy.

VIEWS AND PLAN

OF

FORT McHENRY

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OF

FORT McHENRY



Memorial to Francis Scott Key



Monument of General Armistead



Battery in Front of Entrance



Entrance Inside



Magazine (inside of fort)



Magazine (high explosive)



View of Fort Proper and Batteries



Battery of 8-inch Rifles



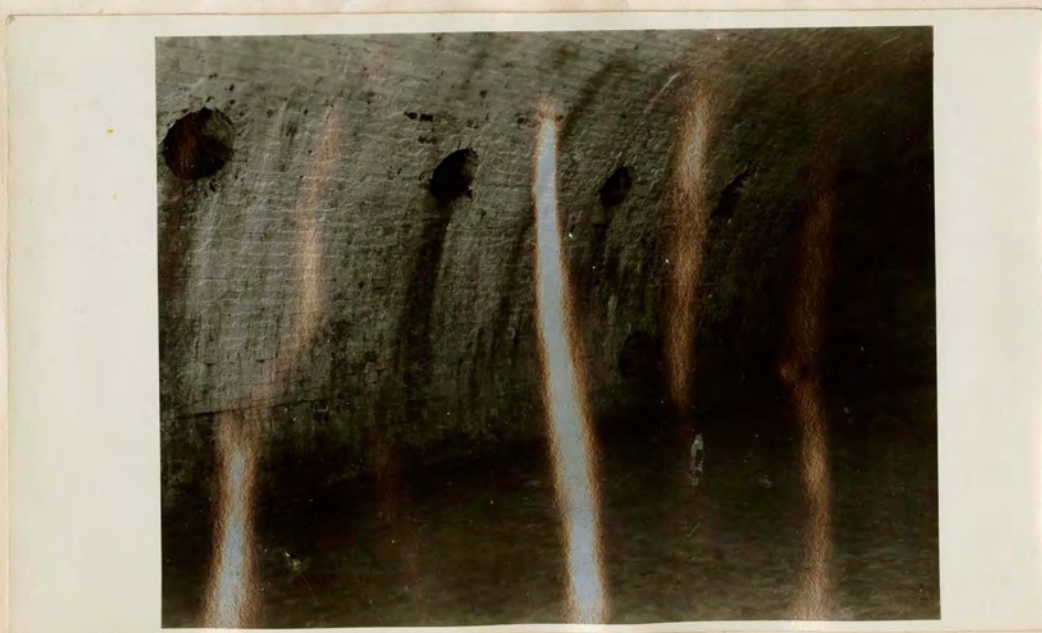
Rear View of Fort Proper



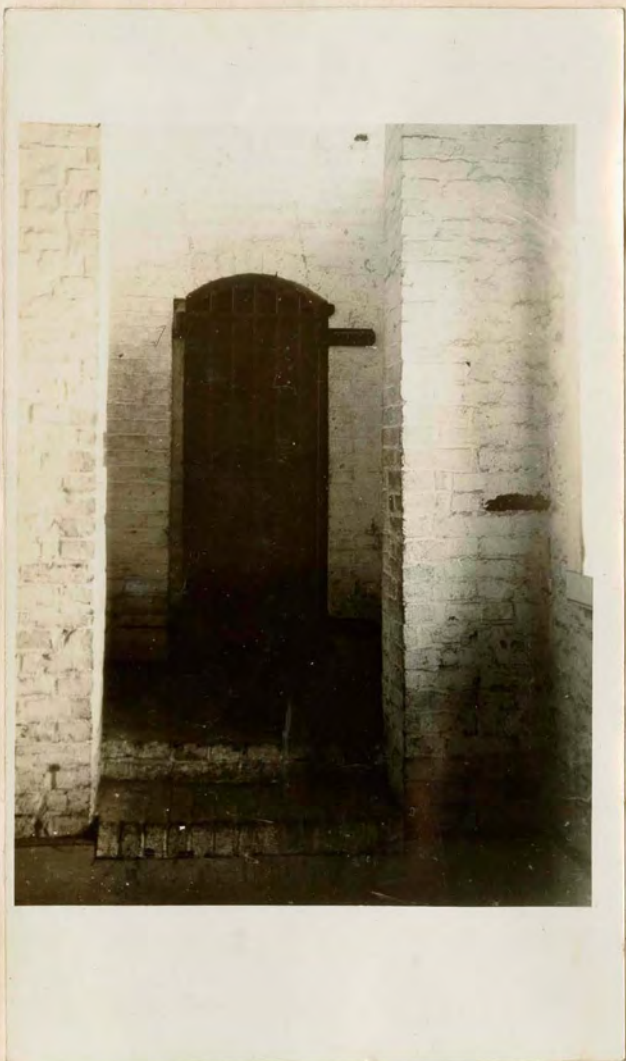
Breastwork and Two 15-inch Smooth Bores



Veterans' Bureau



Inside of Dungeon



Cell for Condemned Men



Entrance Outside



Flag Pole

THE STAR-SPANGLED BANNER

O say can you see ~~through~~ By the dawn's early light
 What so proudly we hail'd at the twilight's last gleaming,
 Whose broad stripes & bright stars through the perilous fight
 O'er the ramparts we watch'd were so gallantly streaming?
 And the rocket's red glare, the bomb bursting in air,
 Gave proof through the night that our flag was still there,
 O say does that star-spangled banner yet wave
 O'er the land of the free & the home of the brave?

On the shore dimly seen through the mists of the deep,
 Where the foe's haughty host in dread silence reposes,
 What is that which the breeze, o'er the towering steep,
 As it fitfully blows, half conceals half discloses?
 Now it catches the gleam of the morning's first beam,
 In full glory reflected now shines in the stream,
 'Tis the star-spangled banner — O long may it wave
 O'er the land of the free & the home of the brave!

And where is that band who so valiantly swore,
 That the havoc of war & the battle's confusion
 A home & a Country should leave us no more?
~~Through and through~~
 Their blood has wash'd out their foul footsteps' pollution
 No refuge could save the hireling & slave
 From the terror of flight or the gloom of the grave,
 And the star-spangled banner in triumph doth wave
 O'er the land of the free & the home of the brave.

O thus be it ever when freeman shall stand
 Between their lov'd home & the war's desolation;
 Blest with vict'ry & peace may the heav'n rescued land
 Praise the power that hath made & preserved us a nation.
 Then conquer we must, when our cause it is just,
 And this be our motto — 'In God is our trust.'
 And the star-spangled banner in triumph shall wave
 O'er the land of the free & the home of the brave.

HISTORY AND DEVELOPMENT
of the
WASHINGTON CENTRAL HEATING PLANT

Herman P. Dial

Presented As Requirement
For Initiation
Maryland Beta Chapter
Tau Beta Pi Association

12/18/36